

AMENDMENTS TO THE CLAIMS

Please amend the claims as follows:

B1 1. (Twice amended) A position detection system for locating an object including a magnetic field generator, comprising:

an array of parallel conductors responsive to a magnetic field generated by the magnetic field generator;

a plurality of receivers each associated with a parallel conductor; and

a plurality of drivers using a sinusoidally-varying, multi-phase driving technique, each coupled with a parallel conductor and configured to drive current through to produce an energizing field used in locating the object.

2. (Original) The system as recited in claim 1, wherein the array of parallel conductors is configured to locate the object along a measurement path.

3. (Original) The system as recited in claim 2, wherein the measurement path comprises a measurement axis, and the array of parallel conductors is orthogonal to the measurement axis.

4. (Cancelled)

5. (Amended) The system as recited in claim 1, wherein at least one driver is configured to send current through the associated parallel conductor in one direction, and at least one driver is configured to send current through the associated parallel conductor in an opposite direction.

6. (Original) The system as recited in claim 5, wherein the drivers are configured so that net current through the array of parallel conductors is substantially zero.

7. (Original) The system as recited in claim 6, further comprising a return conductor configured to balance current between the drivers.

8. (Original) The system as recited in claim 7, wherein the return conductor is disposed such that current passing through produces a constant offset to the energizing fields produced by the array of parallel conductors.

9. (Original) The system as recited in claim 8, wherein the return conductor is disposed at an end of the array of parallel conductors.

10. (Amended) The system as recited in claim 1, wherein the magnetic field generator includes a resonator that is energized by the energizing field.

11. (Original) The system as recited in claim 10, wherein the resonator includes an inductor and capacitor.

12-68. (Cancelled)

69. (Twice amended) A method for detecting position of an object including a resonator, comprising:

providing an array of parallel conductors responsive to the resonator;

providing a plurality of receivers;

associating each receiver with a parallel conductor;

providing a plurality of drivers; ~~and~~

using a sinusoidally-varying, multi-phase driving technique; and

associating each driver with a parallel conductor to drive current through the parallel conductor to produce an energizing field used in locating the object.

70. (Original) The method as recited in claim 69, further comprising configuring the array of parallel conductors to locate the object along a measurement path.

71. (Original) The method as recited in claim 70, wherein the measurement path comprises a measurement axis, and configuring the array of parallel conductors includes placing the array orthogonal to the measurement axis.

72-74. (Cancelled)

75. (Original) The method as recited in claim 69, further comprising using each receiver to receive current from the associated parallel conductor to sense magnetic flux from the resonator.

76. (Original) The method as recited in claim 69, wherein providing the array of parallel conductors includes spacing the parallel conductors apart by a constant spacing.

77. (Original) The method as recited in claim 69, wherein providing the array of parallel conductors includes spacing the parallel conductors apart by a sinusoidally variable spacing.

78. (Original) The method as recited in claim 77, wherein spacing the parallel conductors apart includes varying the spacing sinusoidally according to a position of each parallel conductor in the array of parallel conductors.

79-80. (Cancelled)
